

Department of Agribusiness and Applied Economics

North Dakota State University

Annual Report 2004



*Morrill Hall
North Dakota State University*

The Mission of the Department of Agribusiness and Applied Economics

The mission of this Department is to provide objective economic analysis to support informed decision making in areas of resource allocation, business management, and public policy for the people of North Dakota and beyond. Faculty and staff shall provide high-quality education programs for undergraduate and graduate students and for audiences across the state reached through University outreach efforts.

from:

*Departmental Mission and Goals
April 19, 2005*

Introduction and Departmental Overview	3
I. GOALS/ACCOMPLISHMENTS DURING THE CURRENT YEAR (COLLEGE/UNIT)	
.....	4
A. DISSEMINATION - INSTRUCTION AND STUDENT SUCCESS	4
1. Teaching Initiatives	4
2. Incorporation of Technology in Teaching	4
3. Advising Efforts	5
4. Curriculum Development	6
5. Accreditation or Other Reviews	8
6. Activities in Student Recruitment/Retention, Enrollment Management, and Other Student Activities	8
7. Employment of Graduates	9
8. Senior Professors Teaching Freshman and Transfer Students	9
9. Summer School Activities	9
10. Awards and Recognition of Faculty/Students	10
11. Extension Service Teaching	10
B. RESEARCH/SCHOLARSHIP	13
1. Highlights of Research and Scholarly Activity (Calendar year 2004)	13
2. Grants/Contracts/Research	18
3. Articles/Books/Publications (Calendar year 2004)	21
C. OUTREACH	27
1. Professional Service	27
2. Alumni Events and Other Community-Related Activities	28
3. Fund-Raising Accomplishments	28
4. Other Outreach Activities	28
D. SPECIAL INITIATIVES	28
1. Cultural Diversity	28
2. Affirmative Action/Equal Opportunity	28
3. Cooperation Programming/Interdisciplinary Efforts/Interinstitutional Activities ...	29
4. International Activities	29
5. Economic Development Efforts	30
6. Assessment	30
7. Addressing Institutional Purposes	34
8. College/Unit Planning; Functions/Activities/Accomplishments	35
E. Other Goals	35
II. COMMENTS	35
III. APPENDIX I. AY2005 courses (incl. Summer 2004)	37
APPENDIX II. Quantitative Skills Matrix	41
APPENDIX III. Department Mission and Goals. Adopted April 19, 2005	43

Introduction and Departmental Overview

The Department of Agribusiness and Applied Economics strives to improve public and private decision making through teaching, research, and outreach activities soundly based on economic science.

Teaching programs include offering undergraduate majors in Agribusiness, Agricultural Economics, and Economics. Graduate M.S. degrees are offered in (1) Agribusiness and Applied Economics and (2) International Agribusiness. The Department is involved in three Ph.D. programs: Transportation and Logistics, Food Safety, and Natural Resource Management.

Research projects resulted in 36 (vs. 15 in 2003) journal articles and 33 (vs. 30 in 2003) departmental publications in 2004. Topics ranged over a variety of production, marketing, and economic development topics relevant to the state and nation. The Department generated new extramural funds totaling \$1,698,395 in 2004, an increase of 44% over 2003.

Extension activities included service to North Dakota citizens through cooperative education programs in areas such as crop and livestock marketing, risk management, computer use on the farm, and rural economic development.

Additional information about the Department and its associated research and outreach Centers can be found at:

The Department of Agribusiness and Applied Economics at North Dakota State University:

<http://www.ext.nodak.edu/homepages/aeddept/index.html>

The Center for Agricultural Policy and Trade Studies:

<http://www.ag.ndsu.nodak.edu/capts/>

The North Dakota State Data Center:

<http://www.ndsu.nodak.edu/sdc/>

I. GOALS/ACCOMPLISHMENTS DURING THE CURRENT YEAR (COLLEGE/UNIT)

A. DISSEMINATION - INSTRUCTION AND STUDENT SUCCESS

1. Teaching Initiatives

Teaching initiatives in 2004 primarily consisted of further refinements in the department's courses and programs of study. The undergraduate program committee concluded an analysis of quantitative techniques used throughout the curriculum in order to increase student skills through integration and reinforcement of use.

Dr. Cheryl Wachenheim coordinated AGECE 450/451 (National Agri-Marketing Association) with local professionals involved in agricultural marketing and promotion. The team approach to teaching this course provides students the opportunity to benefit from the academic perspective in utilizing state-of-the-art analytical techniques as well as from the practical expertise of professional practitioners.

The Department began limited cohort scheduling in 2004. One section each of ECON 201 (Microeconomics) and 202 (Macroeconomics) was dedicated to majors in Agribusiness, Agricultural Economics, and Economics. The smaller class size is expected to improve student exposure to economic concepts considered essential to our majors, as well as aid in recruitment and retention of students to the program. These long-term effects are not yet measurable, but student feedback in the smaller sections has been very positive. In addition, the math department agreed to dedicate one section of MATH 146 for our majors in spring 2005 to smooth the transition from AGECE 150 (experimentally on hiatus) to MATH 146 for our majors.

2. Incorporation of Technology in Teaching

The Department continues to adopt new technology to enhance teaching. All classes are available to students via BlackBoard. The mix of webpages, downloadable files, and other features of web-based delivery vary by instructor.

Web-based courses in the Department include ECON 202 (Principles of Macroeconomics), AGECE 350 (AgriSales), and AGECE 375 (Agricultural Law). Personal Response Systems have been adopted by several instructors.

The Department's internet site continues to be updated with reports of student activities. New additions to the OnLocation site this year include reports from the NAMA team during the competition in Kansas City and daily entries from the students participating in this year's summer exchange program with the École Supérieure d'Agriculture in Angers, France (<http://www.ext.nodak.edu/homepages/aedep/extracurricular.htm>).

3. Advising Efforts

The structure of student advising changed in 2004. All incoming Freshmen were assigned to Becky Leitch, a senior instructor in the Department. Based on student surveys of advising, Becky is an excellent advisor. In her new role, she provides students an excellent introduction to the Department and instills in them a habit of working with their advisors to ensure satisfactory progress through our four year program. Becky is also the instructor of the small section of ECON 201 limited to our majors, further strengthening students' sense of belonging to the Department.

Fall 2004 Advising Assignments

Advisor	Freshmen	Sophomores	Juniors	Seniors	Graduate	Total
Devuyst,C	2	3	8	14	0	27
Devuyst,E	0	2	2	3	4	11
Gustafson,C	0	3	8	5	0	16
Hearne,R	0	1	0	3	1	5
Herren,R	3	4	4	5	1	17
Koo,W	0	0	0	0	2	2
Leitch,B	17	7	13	11	0	48
Mack,L	1	1	2	4	0	8
Miljkovic,D	0	0	0	0	1	1
Nganje,W	0	4	1	3	1	9
O'Relley,E	4	2	2	6	0	14
Saxowsky,D	1	0	2	2	0	5
Shultz,S	0	4	1	0	1	6
Wachenheim,C	0	1	3	1	0	5
Wilson,W	0	2	0	4	2	8
Total	28	34	46	61	13	182

In order to assess the quality of undergraduate advising, an evaluation was conducted in the spring 2004 semester. Feedback was received from 63 current students in the program providing comments on 10 faculty advisors. Results indicated divergence in students' perceptions of advising effectiveness by the different faculty. Some students rate very highly in all categories. Students rate some faculty as not providing useful information in course selection, career planning, university life, or commitment to students. Aggregated results for the Department are listed below:

My Advisor is well prepared to help me with:	Agree Strongly	Agree	Neutral	Disagree	Disagree Strongly
Course selection	37	24	1	1	0
Career planning	32	24	4	2	0
University life	22	23	12	2	1
My advisor cares about me	40	15	5	2	0
I would recommend my advisor to others	41	15	3	3	1
Total	172	101	25	10	2

4. Curriculum Development

Enrollment Trends by Academic Year - Student FTEs generated by level and total, AY94-AY05 (Based on course enrollment figures maintained in the Department).

Year	100 (incl 201 & 202)	200 (excl 201&202)	300	400	600 & 700	Total FTEs
AY94	2.09	1.03	1.54	0.88	0.45	6.68
AY95	1.86	1.16	1.77	0.85	0.50	6.87
AY96	2.73	1.18	1.74	1.08	0.71	7.89
AY97	2.28	1.39	1.85	0.72	0.45	7.17
AY98	2.58	1.07	1.95	0.80	0.72	7.37
AY99	2.44	1.44	2.17	0.93	0.79	8.16
AY00	2.76	1.14	2.07	1.17	0.39	8.04
AY01	3.80	1.30	2.82	1.18	0.76	10.12
AY02	7.16	1.24	4.05	1.29	0.74	15.08
AY03	7.33	1.03	4.18	1.22	0.88	14.63
AY04	8.25	1.30	3.82	1.44	1.37	16.18
AY05	8.09	1.33	2.98	1.12	0.78	14.30

Notes

- AY05 values do not include summer session, 2005. For comparison purposes, summer school generated 0.8 FTEs in the summer 2004 terms.
- Student FTEs are reported by academic (fall semester through summer terms) rather than calendar year.

The student FTEs reported in the table illustrate both the increase in student FTEs generated by the department (increasing over 120% between AY94 and AY05) and a change in the composition of courses delivered. Over half of the student FTEs generated are in the lower level principles classes, as opposed to about 30% in these classes at the beginning of the period.

Recognizing that data are not complete for AY05, trends through AY04 indicate a rapid enrollment increase in the principles courses. Enrollment has been stable in the department's 200 level classes (primarily introductory courses in agribusiness and agricultural economics serving both our majors and students from other units in CAFSNR). Following growth in AY02 and AY03, there continues to be a drop in FTEs generated in the 300 level classes.

Student enrollments at the 400 level have increased about 48% between AY94 and AY04. There was a drop in FY05, reflecting smaller class sizes in AGECE 444, 445, 446, and 484. These reductions have been offset somewhat by the growing enrollments in AGECE 420, as well as gains from teaching senior level Economics courses.

Graduate FTEs have about doubled between AY94 and AY05. This increase resulted from increasing student numbers, addition of the new International Agribusiness M.S. program in the fall of 2003, and teaching of several graduate courses in the department rather than in the former Economics department (e.g., AGECE 741).

New or Modified Courses:

Courses taught and FTEs generated for AY05 year are listed in Appendix A. No new courses were taught in AY05 (with the exception of AGECE 360, formerly taught as AGECE 499, being offered in the summer 2005 term).

Faculty loads, AY05.

Instructor	Generated	Appointment	Overload
Devuyst,C	0.55	0.30	0.25
Devuyst,E	0.83	0.35	0.58
Gustafson,C	0.62	0.31	0.31
Hearne,R	0.28	0.10	0.18
Herren,R	1.50	1.00	0.50
Kaitibie,S*	0.04	0.00	0.04
Koo,W	0.12	0.10	0.02
Lambert,D	0.25	0.35	-0.10
Leitch,B	3.09	1.00	2.09
Mack,L	2.93	1.00	1.93
Miljkovic,D	0.39	0.30	0.09
Nganje,W	0.58	0.50	0.08
O'Relley,E	2.07	1.00	1.07
Saxowsky,D	0.55	0.50	0.05

Instructor (cont.)	Generated	Appointment	Overload
Shultz,S	0.48	0.20	0.28
Wachenheim,C	0.74	0.40	0.34
Wilson,W	0.32	0.32	0.00
Totals	15.36	8.03	7.33

* - Indicate faculty from other units or nonteaching faculty or students teaching courses in Agribusiness and Applied Economics.

5. Accreditation or Other Reviews

No accreditation or other reviews were conducted during 2001-2002.

6. Activities in Student Recruitment/Retention, Enrollment Management, and Other Student Activities

Student Recruitment/Retention

Undergraduate Students

New efforts to attract and retain majors will be undertaken in AY05 through adoption of cohort scheduling and the assignment of one of our best undergraduate advisors, Becky Leitch, to be solely responsible for Freshman advising starting June 2004. Data are not yet available to measure the success of these efforts in increasing future student majors. Recruitment targeted incoming University Studies students, with approximately 1200 letters mailed to incoming US students inviting them to Department freshmen activities. There appears to have been no impact of this activity on attracting students to our programs. Finally, we have distributed fact sheets in ECON 201 and 202 promoting the Economics major and the ease of double-majoring in Econ and another area. There has been an increase in double majors since 2003, so this effort does seem to be effective.

Graduate Students

New graduate student numbers for the calendar year 2004 terms totaled ten (3 in spring 2004, 7 in the fall). Three of the students starting in CY 2004 entered the M.S. program in International Agribusiness. Enrollments are close to the long-term average of new graduate students. Recruitment in 2004 included personal contact with NDSU students and recruitment of French students from ESA for the new International Agribusiness M.S. program.

Enrollment Management

Enrollment management records are maintained by our office support staff. Recruitment rather than retention and management seem to be more important student issues for the department.

Other Student Activities

Clubs – The primary clubs for agricultural economics majors are the Agribusiness Club, the student chapter of NAMA, and Collegiate Farm Bureau. The Agribusiness Club hosts many fundraising and social events during the year. An annual award banquet in the spring honors both outstanding undergraduates and leaders in the state's agribusiness industry. The NAMA chapter works all year in developing a marketing plan for an innovative agribusiness product. The chapter's efforts culminate in presentations at the annual NAMA competition. This year's offering of NAMA was a partnership between Dr. Cheryl Wachenheim and NAMA professionals in the local area.

The Collegiate Farm Bureau Chapter, advised by Drs. Eric DeVuyst and Cheryl Wachenheim, received the NDSU award for outstanding student organization for the 2004-2005 academic year.

Scholarships - The Department of Agribusiness and Applied Economics has one of the most successful scholarship programs on campus, awarding approximately \$40,000 each year to students in our different programs. Changes this year included deleting the requirement that recipients of departmental scholarships had to be paid members of the Agribusiness Club. A need in the scholarship area is to increase availability of scholarship funds for Economics majors.

7. Employment of Graduates

Both graduate and undergraduate students from the Department continue to encounter excellent job prospects. Long term trends indicate approximately 30% of the graduating seniors return to family farming. The majority of the remaining graduates find employment with firms such as John Deere, ADM, Cenex, Farm Services Administration, and other agribusiness companies. The average entry level salary of the undergraduates, excluding those returning to farming, was over \$30,000.

8. Senior Professors Teaching Freshman and Transfer Students

There is no departmental policy emphasizing the teaching of freshman and transfer students by senior faculty.

9. Summer School Activities

Since assuming responsibility for the Economics program in July 2001, the Department now offers several summer courses. Courses offered during the summer of 2004 include ECON 201 (Principles of Microeconomics), ECON 202 (Principles of Macroeconomics), and ECON 324 (Money and Banking). In addition, faculty are involved in summer teaching through the Food Safety Institute (SAFE 470/670 and 490/690) and the summer study abroad program in France (AGEC 360 and AGEC 379).

Summer graduate school efforts during the summer are focused on advisement of graduate students and overseeing thesis research.

10. Awards and Recognition of Faculty/Students

The following faculty and staff awards were received during calendar year 2004:

- Dr. Cheryl DeVuyst. Earl and Dorothy Foster Excellence in Teaching Award, Early Career. College of Agriculture, Food Systems, and Natural Resources, December 2004.
- Dr. Cheryl DeVuyst. NDSU Bison Ambassadors' Apple Polisher Award, 2004.
- Dr. Robert Stanley Herren. Awarded membership in Beta Gamma Sigma, an international honor society for AACSB accredited business programs, 2004.
- Dr. F. Larry Leistritz. Named a Fellow of the Center for Appied Rural Innovation, University of Nebraska-Lincoln, 2004.
- Dr. Richard Rathge. The 46th NDSU Faculty Lectureship Award, Spring 2004.
- Shelly Swandal. Donald and Jo Anderson Clerical Staff Award for Excellence. December 2004.
- Kathleen Tweeten. Elected first President of the National Association of Community Development Extension Professionals, 2004.
- Dr. Cheryl Wachenheim. Elected President of WCC-72, the Western Coordinating Committee on Agribusiness.

11. Extension Service Teaching

Highlights of Extension Service Teaching Programs in CY03:

North Dakota Legislature Interim Taxation and Finance Committee

Provided the committee with assessment of how the agricultural land valuation model was working. The committee was primarily interested in the impact of recent legislative changes to the model (Aakre).

North Dakota Dairy Convention

Presentation on the future of dairying and how to enhance the chances of successful transition to the next generation (Aakre).

Crop Insurance Conference

The annual crop insurance conference provides information on the latest changes in the industry. Insurance agents receive continuing education credits for this conference. All Extension faculty are involved in organizing this conference.

Agricultural Lenders Conferences

Conferences for agricultural lenders were held in four locations across the state. Approximately 260 lenders from North Dakota, Minnesota and South Dakota attended. All Extension faculty are involved in organizing this conference.

North Dakota Barley Day

Information was developed and provided on the economics of growing barley for malting and feed. Aakre developed a grid of malting barley price premiums to equate the profitability of barley with competing crops.

Marketing Club Conferences

Marketing and Risk Management workshops were presented with strong educational components. Participants were expected to leave with a working knowledge of marketing, risk and farm management concepts and techniques. Flaskerud participated in organizing and presenting 12 one-day conferences which were attended by 1,125. Aakre presented information on the tax law changes pertaining to machinery depreciation. Swenson presented information on incorporating family living expenses in breakeven price analyses.

Irrigation Workshop

These workshops were for beginning and potential irrigators. Aakre discussed the costs of irrigation investment as well as the cost and returns for various crop rotations under irrigation. Workshops were held in Carrington and New Town.

Crop Land Economics Meetings in Grand Forks, Golden Valley, Hettinger, Stark and Dunn Counties

Aakre presented information on land rental values, rental agreements, calculating affordable land rents and estimating the agricultural value of crop land.

Pasture and Hay Land Economics Meetings in Golden Valley, Hettinger, Stark and Dunn Counties

These meetings covered the economics of renting pasture and hay land and current trends (Aakre).

Machinery Economics Meetings in Golden Valley, Hettinger, Stark and Dunn Counties

These meetings were designed to assist producers in determining their machinery costs. Aakre compared different options for controlling the use of farm machinery.

Corn and Soybean Field Tour, Carrington Research and Extension Center

Aakre covered the economics of harvesting wet and immature corn for grain compared to silage.

Livestock Agents In-Service Training

Aakre presented information on harvesting wet and immature corn by various methods.

Community Strategic Planning/facilitation (Tweeten).

Selected educational activities:

- Workshop held at the 2004 Marketplace of Ideas on asset based planning.
- Co-presented a session on Community Economic Analysis to primary community college presidents at the national RCCA conference.

Entrepreneurship and BR&E (Tweeten)

Selected educational activities:

- Conducted county based agri-tourism workshops in Bottineau and Towner
- “Development of Rural Tourism Businesses” and “Selecting a BR&E Model: Ten Questions to Guide the Process” – Co-presented two concurrent sessions at the 2004 National RCCI conference.

- Nature based tourism workshop held prior to Marketplace of Ideas in January.
- Presented a session for the Gateway to Opportunity Regional Economic Development forum in Dickinson on Rural Tourism Facilities and on starting a B&B.
- Presented at the Great Plains Regional/Tribal Economic Development Summit to over 150 tribal members and community college faculty on the value of youth entrepreneurship programming.
- BR&E – I co-taught the certification training on Business Retention and Expansion for economic developers in Halifax, Nova Scotia at the annual BREI conference. I coordinated the state industry leadership visioning session. Partners were the Department of Commerce, NDUS office, Vocational Education, Job Service and others.
- Organized and presented in a *Branding ND* workshop held in Edinburg.

Leadership Development

Selected educational activities:

- Presented an all day workshop for the Stockmen's Association for ag mentors and students.
- Participated in a focus group for the Federal Reserve Bank of Minneapolis Community Affairs department to discuss issues facing communities and to help them identify potential programs and partnerships opportunities.

Extension Computer Classes

Accounting for Farm, Home and Business

Workshops were held in Bottineau, Cooperstown, Dickinson, Hettinger, Napoleon, New Salem, Towner, Valley City and Washburn (Swenson and Haugen).

Excel

Presented a one-day hands-on workshop at Mandan on using Excel (Swenson)

Quickbooks

Presented 4 one-day "Quickbooks" workshops. Workshops were held in Hettinger, Wahpeton, Grand Forks and Hillsboro. (Swenson and Haugen)

FINPACK

Presented two-day workshops on Finpack farm financial management software at Fargo and Hettinger (Swenson).

North Dakota Costs of Production for Two Representative Farms

Presented at the International Farm Comparison Network oilseed conference in Braunschweig, Germany (Swenson).

Organic Markets and Production

Overview of the growing organic industry presented to the U.S. Bank farm managers conference, Fargo (Swenson).

Tax Management for Ag Producers

Presented via interactive video to 11 sites in ND. Swenson organized a panel of tax experts, prepared a brochure and news release, edited a tax booklet for participants, and moderated the program. About 42 percent of attendees were tax preparers, 44 percent were farmers and 14 percent were “other.” (Swenson)

B. RESEARCH/SCHOLARSHIP

The mission of this unit is to provide objective economic analysis and to support informed decision making in areas of resource allocation, business management, and public policy for the people of North Dakota and beyond (from the Department's mission statement adopted February 26, 1992).

In addition to contributing new knowledge, economics research is essential to the maintenance of effective and relevant educational and outreach efforts. Individual faculty members are encouraged to develop research programs in their areas of specialization to increase the value of their contributions to the people of North Dakota.

1. Highlights of Research and Scholarly Activity (Calendar year 2004)

Departmental research addresses a wide variety of issues important to American producers and consumers:

Bioterrorism and America's Food Supply

Outgoing Secretary of the Department of Homeland Security Tom Ridge stated in December 2004 that the continuing dangers to America's food supplies is his number one fear under the heightened state of security following the attacks of November 11, 2001. Responding to this threat have been efforts to analyze effective investment in agroterrorism risk mitigation strategies by private food companies. **William Nganje**, in collaboration with the National Center for Food Protection and Defense housed at the University of Minnesota, is developing models to assess effective testing and intervention strategies to minimize and contain the risk of bioterrorism acts affecting the U.S. food system.

Economic Losses from Fusarium Head Blight

The direct and secondary economic impacts of scab in wheat and barley on North Dakota were \$3.5 billion between 1993 and 2001. North Dakota's impacts accounted for 45% of the total crop losses in the nine states studied. The magnitude of the impacts indicate the need for additional research efforts within the College to develop scab-resistant strains of small grains, and will provide a benchmark from which to estimate productivity improvements when new varieties and treatments become available. Principal researchers include **William Nganje**, **Bill Wilson**, and **Larry Leistriz**.

Genetic Determinism in Beef Cattle Performance

Exciting new breakthroughs in science underlie **Eric DeVuyst** current research. Along with colleagues in Animal and Range Sciences, he is evaluating the relationship between beef cattle genotype and both performance on feed and subsequent carcass values. His work should identify the genes leading to higher valued carcasses, thus having a major impact on the beef cattle industry.

Agricultural Land Values

Dwight Aakre and **Harvey Vreugdenhil** annually determine land values for all North Dakota counties. Agricultural land values in North Dakota decreased by 0.66 percent for the 2004 assessment from 2003. The average value of all agricultural land decreased in 37 counties and increased in 16 counties. The results of this research are turned over to the State Tax Department, which provides the results to each county for assessing property taxes. Every owner of agricultural land in the state is impacted by the impacts of this analysis on their tax bills.

Analysis of 2004 North Dakota Crop Losses

NDSU economists **Dwight Aakre**, **George Flaskerud** and **Larry Leistritz** along with Dale Ihry with the North Dakota Farm Service Agency, surveyed county agricultural agents and county emergency boards to determine the extent of weather-related crop damage in 2004. The direct crop losses to North Dakota producers are estimated to be \$530 million. About \$201 million is expected to be covered by federal multi-peril crop insurance, leaving a net loss of \$329 million to the state's producers. Due to economic multipliers, the total negative impact on the state's economy is estimated to be \$1 billion. State officials used this study to provide documentation for crop loss disaster assistance. North Dakota's congressional delegation formed a coalition with members from other Midwest states, and successfully moved an agricultural disaster bill through Congress. This legislation is expected to bring more than \$200 million to North Dakota. This will offset two-thirds of the net farm income loss after crop insurance payments.

Financial Structure and Farm Production Efficiency

Farm financial structure can affect both short-and long-run input use. In an analysis of 54 North Dakota crop farms covering 1995-2001, **Dave Lambert** and a graduate student found production efficiency and debt structure to be closely related. Intermediate debt was found to be positively related to farm technical efficiency, suggesting increased borrowing to utilize technological improvements embodied in equipment and other intermediate-term assets can improve farm productivity. Short-term debt was negatively associated with technical efficiency. The negative relationship supports the hypothesis that higher costs of external relative to internal funds result in input misallocation. An alternative explanation, especially in a state subject to adverse weather events during the production year, may be increased reliance on operating loans to compensate for production shocks during the year.

Living Costs for North Dakota Farm Families

Andrew Swenson analyzed farm family living expenses for participants in the North Dakota Farm Business Management Education program over an eight year period. The average living expenditures of North Dakota farm households was \$40,517 in 2003. The trend from 1996 through 2003 has been an annual increase of nearly \$1,600. On average, the increase in living expenditures has been met equally by greater off-farm income and an increase in farm size. Family living costs represent the largest farm expense item and can have a significant impact on the annual change in farm net worth. Medical costs have risen from \$5,120 in 1996 to \$7,040 in 2003 and currently represent 17 percent of total farm family living expenditures. The impact of the research is to encourage farm families to adjust family living expenses and/or income generation to better meet family and farm goals.

Farm Savings Accounts for Income Stabilization

Andrew Swenson participated with colleagues from Kansas, Illinois, Alabama and New York in a USDA-Economic Research Service study to evaluate the variability of farm income and three income stabilization savings account proposals. Farm savings accounts encourage farmers to make voluntary contributions to special accounts that would provide long-term income stabilization. The study has increased the understanding of farm policy measures that seek to provide farm income-stability and also other programs where subsidies could be triggered by measures of net or gross farm income. Policy shifts away from programs tied to the production of specific agricultural commodities increase this study's impact, especially during upcoming debates surrounding the 2007 farm bill.

Risk Management in Sunflower Marketing

George Flaskerud analyzed NuSun oil sunflower price risk and marketing for the 2004 season. Alternative marketing strategies, including cross-hedging with soybean and canola futures. Although no single marketing strategy dominated, seven strategies ranked better than harvest sales only. Soybean oil futures performed somewhat better across all strategies, but with somewhat higher variability. The sunflower crushing industry and producers will benefit from the price risk management strategies presented in the study. For example, just a 25 cent per hundredweight price improvement for the North Dakota 2003 oil sunflower crop would have increased revenue to producers and the state by \$3.3 million.

Crop Insurance

In cooperation with the Northern Plains Potato Growers, **Cole Gustafson** compiled a list of recommendations for the potato crop insurance program that was forwarded to USDA's Risk Management Agency (RMA) for consideration. Areas addressed in the research include quality provisions, seed endorsements, processing quality specifications, discounts for unharvested acres, storage extension, freeze dates, and adjustment for tuber rot. The recommendations lessen the opportunity for program

fraud and abuse, will lead to greater actuarial fairness, and may increase grower participation thus mitigating some of farming's inherent risks.

Market Channel Segregation of Genetically Engineered Wheat

Research by **Bill Wilson** suggested that it would be possible to produce and market both GM and conventional wheat in the same market system. The added cost would be about 5c/b, largely comprised of testing costs and a premium to compensate sellers for the added risk of handling GM in a dual market. With an optimally defined testing and segregation system, buyers' risk (i.e., the risk of receiving GM in a non-GM contract) would be less than .02%. The framework can be used to develop contract mechanisms and segregation and testing protocols to facilitate marketing of GM and non-GM wheat and other grains in the same marketing system.

Impacts of Genetically Engineered Wheat on Farm Input Markets

Bill Wilson and a graduate student addressed the economic impact of introducing GM crop technology on prices of competing conventional technologies. The results provides estimates about the prospective adoption rates of Round-up ready wheat and fusarium resistant wheat. Results suggest that if GM wheat were released, a price decrease of 31-35% would result for conventional herbicides. The cost savings to farmers continuing to produce a conventional variety post-introduction of RR HRS wheat would be between \$13-20 million due to lower prices for conventional inputs.

Similarly, commercialization of a GM fusarium resistant HRS wheat variety would result in a price decrease of 30-36% for conventional fungicides. The estimated reduced costs for farmers who continue to produce conventional varieties following introduction of a GM fusarium resistant HRS wheat variety was \$15-20 million.

Introduction of either the RR or GM FR wheat traits improved profits for both growers who would adopt the new GM variety and those using the conventional variety (due to the price decline for competing technologies), as well as to the agbiotechnology firm.

Industrial Markets for Agricultural Products

In another project relying on new developments in materials science, **Larry Leistriz** is assessing the economic potential of converting agricultural residues into a new manmade substance called nanowhiskers. Demand by manufacturers needing strong, yet lightweight materials could lead to a major new market for North Dakota agricultural producers, as well as foster manufacturing employment within the state.

BSE and the Rural Banking Industry

Research led by **Cheryl DeVuyst** determined the impacts of a BSE outbreak on North Dakota cattle producers and rural financial institutions. Simulation models analyzed impacts of a BSE outbreak during different stages of the cattle price cycle.

Results illustrate that even a minimal BSE outbreak during a time of average to low cattle prices can reduce ND cattle producers' revenues below their operating expenses. An extensive outbreak during the middle of the cattle cycle (average prices) led to a minus 30% return on equity and ending cash balances falling below minus \$20,000. Results are more severe during the expansionary or lowest price level of the cattle cycle. These results led to decreased credit quality for rural banks and the need for rural banks, especially smaller rural banks with higher proportions of borrowers raising cattle (indicative of smaller banks in Central and Western ND), to increase risk management strategies to allow for loan losses.

2. Grants/Contracts/Research

Department of Agribusiness and Applied Economics – 2004 Grants and Contracts

Investigator(s)	Agency	Project Title	Awarded
DeVuyst, Eric Bauer, Marc Lambert, David Leistritz, F. Larry	USDA/CSREES	Economics of Bovine Leptin Genotyping	\$171,000
Koo, Won	DHS/U.S. Customs Service	Analysis of U.S. Trade and Farm Policies	\$745,124
Leistritz, F. Larry	SBARE	The Contributions of the Red River Valley Sugarbeet Industry to the Economies of North Dakota and Minnesota	\$6,257
Leistritz, F. Larry	DOE/UND EERC	Agricultural Soil Carbon Sequestration	\$139,803
Leistritz, F. Larry	International Association for Impact Assessment	Technical Assistance/Support for IAIA Website Training Manual	\$2,525
Leistritz, F. Larry	Garrison Diversion Conservancy District	Socioeconomic Analysis to Support the Red River Valley Water Supply Study	\$53,242
Leistritz, F. Larry	Minot Area Chamber of Commerce	Evaluating the Importance of the Minot Air Force Base to the Regional Economy	\$7,500
Leistritz, F. Larry	DOD/ONR/Luna Innovations, Inc.	Evaluating the Potential of Agricultural and Natural Resource-Based Tourism to Diversify Rural Economies in North Dakota	\$5,000
Leistritz, F. Larry	Sugarbeet Research and Education Board of MN and ND	The Contribution of the Red River Valley Sugarbeet Industry to the Economies of North Dakota and Minnesota	\$8,470
Leistritz, F. Larry	International Association for Impact Assessment	Technical Assistance/Support for IAIA Website Training Manual	\$2,525
Leistritz, F. Larry	Chamber of Commerce of Fargo-Moorhead	Evaluating the Importance of the Fargo Air National Guard Unit to the Regional Economy	\$9,950

Investigator(s)	Agency	Project Title	Awarded
Nelson, William Wachenheim, Cheryl	USDA/Michigan State University	Hybrid Striped Bass Aquaculture	\$23,863
Rathge, Richard Leistriz, F. Larry	USDA/CSREES	Regional Center for Rural Development in North Dakota 2003 Special Grant	\$82,192
Rathge, Richard Olson, Kay	ND Department of Health	Pregnancy Risk Assessment Monitoring System (PRAMS)	\$70,336
Rathge, Richard	Annie E. Casey Foundation	North Dakota Kids Count 2004 Activities	\$75,000
Rathge, Richard	DOD/ONR/Luna Innovations, Inc.	Next Steps Expansion Project (Technical Assistance	\$8,295
Shultz, Steven	ND State Water Commission	The Economic Value of Lake Sakakawea Fishing	\$17,820
Shultz, Steven	ND Game and Fish Department	The Economic Value of Lake Sakakawea Fishing	\$25,300
Shultz, Steven	Otto Bremer Foundation/Tri-College University	Floodplain Location on Property Values in Fargo	\$19,550
Shultz, Steven	University of North Dakota	The Estimation of Township Level Land Values for Water Impoundment Programs in the North Dakota and Minnesota Portions of the RRV or An Innovative Approach to Basinwide Flood Control: The Evaluation of the Waffle Concept	\$20,059
Shultz, Steven	USDA/National Agricultural Statistics Service	Understanding Differences in Alternative Agricultural Land Value Estimates in Areas of Production Agricultural: Evidence from North Dakota	\$26,000
Tweeten, Kathleen	Ewing Kaufman Foundation	Mini Society	\$26,000
Tweeten, Kathleen	DOC	NDSU Extension Service - IBID University Center	\$18,750
Wilson, William	ND Wheat Commission	Market Development Support	\$18,000
Wilson, William	ND Wheat Commission	Marketing on Variety Basis	\$15,000

Investigator(s)	Agency	Project Title	Awarded
Wilson, William	ND Wheat Commission	Traceability and Variety Marketing Strategies for HRS Wheat	\$2,500
Wilson, Bill Dahl, Bruce	SBARE	Traceability and Variety Marketing Strategies for HRS Wheat	\$7,500

Total Grants and Contracts \$1,607,561
 Number of Grants 27
 Average per Grant \$59,539

3. Articles/Books/Publications (Calendar year 2004)

2004 Research Publications

The following list of publications provides an overview of the breadth of research conducted by economists in the Department of Agribusiness and Applied Economics during 2003.

With the exception of the peer-reviewed journal articles and books, all of these papers can be viewed from the departmental publications website:

<http://www.ext.nodak.edu/homepages/aeddept/aemisc/publist.htm>

JOURNAL ARTICLES

2004 Journal Articles

Bangsund, Dean A., Nancy M. Hodur, and F. Larry Leistritz. "Agricultural and Recreational Impacts of the Conservation Reserve Program in North Dakota." *Journal of Environmental Management* 71(2004):293-303.

Batabyal, A., and H. Beladi. "On the Tradeoff Between Cultural Sensitivity and Aggregate Size in Population Control Policy." *Applied Economics Letters* 11(7):401-404, June 2004.

Batabyal, A., and H. Beladi. "Swidden Agriculture in Developing Countries." *Review of Development Economics* 8(2), May 2004.

Batabyal, A., and H. Beladi. "Time Restrictions in Natural Resource Management: A Dynamic and Stochastic Analysis." *European Journal of Operational Research* 157(3):775-783, September 2004.

Beladi, H., and R. Batra. "Traded and Non-traded Goods and Real Wages." *Review of Development Economics* 8(1):February 2004.

Beladi, H., and S. Kar. "Skill Formation and International Migration: Welfare Perspectives of Developing Countries." *Japan and the World Economy* 16(1):35-54, January 2004.

Beladi, H., A. Chakarbarati, and S. Marjit. "Trade and Wage Inequality in Developing Countries." *Economic Inquiry* 42(2):295-303, April 2004.

Dahl, Bruce, W. Wilson, and D. Johnson. "Valuing New Varieties: Tradeoffs Between Growers and End-Users in Wheat." *Review of Agricultural Economics* 26(1):82-96, 2004.

Dahl, Bruce L., William W. Wilson, and William Nganje. "Stochastic Dominance in Wheat Variety Development and Release Strategies." *Journal of Agricultural and Resource Economics* 29(1):94-111.

DeVuyst, E.A., and A. D. Halvorson. "Economics of Annual Cropping Versus Crop-Fallow in Northern Great Plains as Influenced by Tillage and Nitrogen." *Agronomy Journal* 96:148-153, 2004.

- Flaskerud, George. "Thoughts on Implications of Brazilian Soybean Production on Selected States." *Journal of the American Society of Farm Managers and Rural Appraisers* 2004:75-84.
- Gustafson, Cole R., "Financial Analysis of Value-added Farm Activities" *Agricultural Lender* 8(5):10-11, 2004.
- Gustafson, Cole R. "Rural Small Business Finance – Evidence from the 1998 Survey of Small Business Finances." *Agricultural Finance Review* 64:33-44, 2004.
- Hearne, Robert. "Evolving Water Management Institutions in Mexico." *Water Resources Research* 40(12), November 2004.
- Jin, Hyun J., and Darren L. Frechette. "A New T-test for the R/S analysis and long memory in Agricultural Commodity Prices." *Applied Economics Letters* 11(11):661-667, September 2004.
- Jin, Hyun J., and Darren L. Frechette. "Fractional Integration in Agricultural Futures Price Volatilities." *American Journal of Agricultural Economics* 86(2):432, May 2004.
- Jin, Hyun J., Guedae Cho, and Won W. Koo. "Third Country Effects on the Market Share of U.S. Wheat in Asian Countries." *Journal of Agricultural and Applied Economics* 36(3):797-813, December 2004.
- Kim, MinKyoung, Gue Dae Cho, and Won W. Koo. "Does the Exchange Rate Matter to Agricultural Bilateral Trade between Canada and the U.S." *Canadian Journal of Agricultural Economics* 52(1), 127-145, March 2004.
- Koo, Won W., and Chin Chan Lee. "Policy Alternatives in Liberalizing the Korean Rice Industry under Globalization." *Korean Journal of Agricultural Economics* 45(3)2004:41-67.
- Koo, Won W., and I.H. Uhm. "Trade Remedy Laws in the United States: Bilateral Grain Trade Disputes with Canada." *North Dakota Law Review* 79(2004):921-952.
- Koo, Won W., and I. H. Uhm. "The Examination of the U.S. Trade Remedy Laws: Asymmetric Wheat Trade Flows Between the United States and Canada." *International Trade Law* 57(2004):46-85.
- Leistritz, F. Larry, Dean A. Bangsund, and Nancy M. Hodur. "Assessing the Economic Impact of Invasive Weeds: The Case of Leafy Spurge (*Euphorbia esula*)." *Weed Technology* 18:1392-1395, 2004.
- Lesch, William C., and Cheryl J. Wachenheim. "Chairperson Views on the Internationalization of Agricultural Economics Curricula at Land Grant Universities." *NACTA Journal* 48(1):11-21, March 1, 2004.

- Marjit, Sugata, Hamid Beladi, and Avik Chakrabarti. "Trade and Wage Inequality in Developing Countries." *Economic Inquiry* 42(2):295-303, April 2004.
- Nganje, William E., Dean A. Bangsund, F. Larry Leistritz, William W. Wilson, and Napoleon M. Tiapo. "Regional Economic Impacts of Fusarium Head Blight in Wheat and Barley." *Review of Agricultural Economics* 26(3):332-347, 2004.
- Park, Joon, and Won W. Koo. "An Economic Analysis of Ocean Freight Rates for Grain Shipments from the United States to Major Importing Countries." *Journal of the Transportation Research Forum* 43(2): 85-100, 2004.
- Sarmiento, C. "Modeling Firm Heterogeneity with Spatial Trends." *Applied Economics Letters* 11(5):271-274, April 2004.
- Shultz, Steven, and Steve Taff. "Calculating Wetland Easement Payments with Alternative Land Value Data: A Case Study of the USFW Small Wetland Acquisition Program in the Prairie Pothole Region." *Journal of Soil & Water Conservation* 59(3):103-109, 2004.
- Shultz, Steven, and Steve Taff. "Implicit Prices of Wetland Easements in Areas of Production Agriculture." *Land Economics* 80(4):501-512, November 2004.
- Wachenheim, C.J. "Consumer Acceptance of Genetically Modified Food Products." *AgBiotechNet* Vol. 6, ABN 126, 1-6, 2004.
- Wachenheim, C.J. "How an Online Course Compares to Its Classroom Counterpart: A Preliminary Investigation." *NACTA Journal* 48(4):20-26, December 2004.
- Wachenheim, C.J., and W. C. Lesch. "U.S. Executives' Views on International Agribusiness Education in the United States: An IAMA Membership Survey." *International Food and Agribusiness Management Review* 7(1):42-59, 2004.
- Wachenheim, C.J., and T. VanWechel. "The Influence of Environmental Impact Information on Consumer Willingness to Pay for Products Labeled as Free of Genetically Modified Ingredients." *Journal of Food Distribution Research* 35(2):1-13, 2004.
- Wachenheim, C. J., J. W. Mattson, and W. Koo. "Canadian Exports of Livestock and Meat to the United States." *Canadian Journal of Agricultural Economics* 52(1):55-72, March 2004.
- Wilson, William W. and Bruce L. Dahl. "Transparency and Bidding Competition in International Wheat Trade." *Canadian Journal of Agricultural Economics* 52(1):89-105, March 2004.
- Wilson, William W., Donald C. E. Carlson, and Bruce L. Dahl. "Logistics and Supply Chain Strategies in Grain Exporting." *Agribusiness: An International Journal* 20(4):449-465, Autumn 2004.

AGRIBUSINESS AND APPLIED ECONOMICS REPORTS

2004 No. 552

Logistical Costs and Risks of Marketing Genetically Modified Wheat, Schlecht, Shannon M., William W. Wilson, Bruce L. Dahl

2004 No. 551

Logistical Costs and Strategies for Wheat Segregation, Schlecht, Shannon M., William W. Wilson, Bruce L. Dahl

2004 No. 550

Effects of the Canadian Wheat Board on the U.S. Wheat Industry, Prepared for Senator Kent Conrad, Koo, Won W., Jeremy M. Mattson, Hyun J. Jin, Richard D. Taylor, Guedae Cho

2004 No. 549

Developing the Outdoor Recreation-related and Nature-based Tourism Sector in Southwestern North Dakota, Leistritz, F. Larry, Nancy M. Hodur, Kara L. Wolfe

2004 No. 548

The Trade Imbalance between the United States and China: The Role of Exchange Rate and Trade Liberalization, Cho, Guedae, Won W. Koo

2004 No. 547

Marketing Mechanisms in GM Grains and Oilseeds, Maxwell, Brett, William W. Wilson, Bruce L. Dahl

2004 No. 546

Financial Characteristics of North Dakota Farms 2001-2003, Swenson, Andrew L.

2004 No. 545

Incentive Contracts to Meet Functional Characteristics in Wheat Purchasing, Wilson, William W., Brett J. Maxwell, Bruce L. Dahl

2004 No. 545-S **(12-Page Summary)**

2004 No. 544

Procurement Strategies to Meet Functional Requirements in Wheat Shipments, Wilson, William W., Del A. Peterson, Bruce L. Dahl

2004 No. 543

U.S. Foreign Direct Investment in Food Processing Industries of Latin American Countries: A Dynamic Approach, Skripnitchenko, Anatoliy, Won W. Koo

2004 No. 542

Preferential Trade Arrangements: Impacts on Agricultural Trade and Income, Skripnitchenko, Anatoliy, Hamid Beladi, Won W. Koo

2004 No. 541

Grades/Classes of Hard Wheat Exported from the United States: Analysis of Demand and Trends 1986-2003, Dahl, Bruce L., William W. Wilson

2004 No. 540

North Dakota Shopper Perceptions of Genetically Modified Organisms and Food: Results of a Winter 2003 Survey, Wachenheim, Cheryl J., William C. Lesch

2004 No. 539

Producer Contract Strategies in GM Crops, Maxwell, Brett J., William W. Wilson, Bruce L. Dahl

2004 No. 538

Economic Impacts of Fusarium Head Blight in Wheat and Barley: 1993-2001, Nganje, William E., Simeon Kaitibie, William W. Wilson, F. Larry Leistritz, Dean A. Bangsund

2004 No. 537

Characteristics of Nature-based Tourism Enterprises in North Dakota, Hodur, Nancy M., Dean A. Bangsund, F. Larry Leistritz

2004 No. 537-S **(19-Page Summary)**

2004 No. 536

2004 Outlook of the U.S. and World Sugar Markets, 2003-2013, Koo, Won W., Richard D. Taylor

2004 No. 535

2004 North Dakota Agricultural Outlook: Representative Farms, 2004-2013, Taylor, Richard D., Won W. Koo, Andrew L. Swenson

2004 No. 534

Agribusiness Trade Credit – A Paradox, Gustafson, Cole R.

2004 No. 533

2004 Outlook of the U.S. and World Wheat Industries, 2003-2013, Koo, Won W., Richard D. Taylor

2004 No. 532

Economic Contribution of the Sugarbeet Industry in Minnesota, North Dakota, and Eastern Montana, Bangsund, Dean A., F. Larry Leistritz

2004 No. 531

Non-Tariff Trade Barriers in Agriculture, Mattson, Jeremy W., Won W. Koo, Richard D. Taylor

2004 No. 530

Assessment of the Extent and Success of Leafy Spurge Biological Control Agents, Hodur, Nancy M., F. Larry Leistritz, Dean A. Bangsund

2004 No. 529

Analysis of the World Oil Crops Market, Mattson, Jeremy W., Changyou Sun, Won W. Koo

2004 No. 528

The Relative Impact of National Monetary Policies and International Exchange Rate on Long-term Variations in Relative Agricultural Prices, Cho, Guedae, Minkyong Kim, Won W. Koo

AGRIBUSINESS AND APPLIED ECONOMICS MISCELLANEOUS REPORTS

2004 No. 195

A Comparison of Departmental Teaching Efficiency in the College of Agriculture, Food Systems, and Natural Resources: AY2000-AY2004, Lambert, David K.

2004 No. 194

Limitations of Value-at-Risk (VaR) for Budget Analysis, Gustafson, Cole R.

STAFF PAPERS

2004:

AAE 04001 *Estimating the Contribution of the FARGODOME to the Area Economy*, Hodur, Nancy M., Dean A. Bangsund, F. Larry Leistritz, John Kaatz

AAE 04002 *North Dakota Lignite Energy Industry's Contribution to the State Economy for 2003 and Projected for 2004*, Coon, Randal C., F. Larry Leistritz

AAE 04003 *Results of the North Dakota Land Valuation Model for the 2004 Agricultural Real Estate Assessment*, Aakre, Dwight G., Harvey G. Vreugdenhil

AAE 04004 *Characteristics and Expenditures of Participants in the Potholes and Prairie Birding Festival*, Hodur, Nancy M., F. Larry Leistritz, Kara Wolfe

AAE 04005 *Value of Social Capital to Mid-sized Northern Plains Farms*, Gustafson, Cole R.

AAE 04006 *Rabobank's Offer to Purchase Farm Credit Services of America – A Case Study*, Gustafson, Cole R.

BOOKS

Koo, Won W., and P. Lynn Kennedy. *International Trade and Agriculture*. Blackwell Publishing Ltd., Malden, MA. 2004

SPECIAL REPORT SERIES

CENTER FOR AGRICULTURAL POLICY AND TRADE STUDIES

2004

04-1 *Economic Impacts of the U.S. - Australia Free Trade Agreement*, Mattson, Jeremy W., Anatoliy Skripnitchenko, , Won W. Koo

04-2 *Economics of Detection and Control of Invasive Species: Workshop Highlights*, eds. Won W. Koo and Jeremy W. Mattson

- 04-3 *Agricultural Competitiveness and Change under Globalization -- Conference Highlights*
-- Edited by Jeremy W. Mattson and Won W. Koo
- 03-4 *The Effects of the BSE Outbreak in the United States on the Beef and Cattle Industry*, Jin, Hyun J., Anatoliy Skripnitchenko, Won W. Koo

STATE DATA CENTER PUBLICATIONS

(North Dakota State Data Center, Department of Agribusiness and Applied Economics)

Cochran, Carole, Richard Rathge, and Kathy Moore. *Family Economic Security for Rural Americans*, 2004, (58pp.).

Olson, Karen, and Richard Rathge. *2004 North Dakota Kids Count! Fact Book*, 2004, (150pp.).

Schwarzwalter, Kay, Ramona Danielson, and Richard Rathge. *North Dakota PRAMS -- 2002 Survey Results*, Issued December 2004, (110pp.).

Rathge, Richard, Taufik Abidin, Ramona Danielson, Sarah Jenson, Jordyn Nikle, and Karen Olson. *North Dakota Statewide Housing Needs Assessment: 2004 - Final Report*, Issued November 2004 (170pp).

Fassinger, Polly, Sarah Jenson, Richard Rathge. *Economic Impact of Child Care in North Dakota*, RB04-1, Issued September 2004, (13pp.).

THESES AVAILABLE ON THE WEB

2004:

Factors Influencing Blackbird Damage to Sunflowers in Stutsman County, North Dakota, Ronning, Brent A.; May.

Genetically Modified Wheat: Price Impacts on Competing Technologies and Strategies of Agbiotechnology Firms, Huso, Scott R.; November.

Predicting Food Safety Losses in Turkey Processing, Siaplay, Mounir; November.

C. OUTREACH

1. Professional Service

Several faculty members occupy national or regional positions in professional organizations. Cheryl DeVuyst is chair of the Committee for Women in Agricultural Economics Tracking Subcommittee and serves on the Board of Directors of the Western Agricultural Economics Association. Eric DeVuyst is on the Advisory Board of the Hettinger Research and Extension Center. Stan Herren is the book review editor for the *Journal of Economics*. Larry Leistritz is a member of the Conference Sponsorship Committee for the International Association for Impact Assessment. Richard Rathge is an associate editor of *Rural Sociology*. Dave Lambert was selected for a three-year term to the Board of the Council on Food, Agricultural, and Resource Economics in 2004. Dragan Miljkovic is an associate editor for the *Journal of Agricultural and Applied Economics* and founder and editor of the *Journal of International Agricultural Trade and Development*.

2. Alumni Events and Other Community-Related Activities

Department faculty are active in agricultural fraternities and sororities, attend graduation, reunions, and honors banquets, and participate in agricultural shows and events in which College alumni are frequently present.

3. Fund-Raising Accomplishments

The Department of Agribusiness and Applied Economics continues to offer one of the largest departmental scholarship programs on campus. Over \$40,000 was granted to students in the Department this year. Coordination and judging of applicants is done by Becky Leitch.

Fund-raising for individual department-sponsored events, such as travel of the student NAMA chapter to the national competition in Kansas City in April, was conducted by students with organizational oversight by individual faculty members. David Saxowsky and Cole Gustafson collaborated with Jay Leitch from the College of Business Administration to raise approximately \$50,000 in capital pledges for the new Business Building.

4. Other Outreach Activities

Department faculty continue to provide talks, lead discussions, and provide media information to a variety of state and national requests. Faculty serve as volunteers for a number of community and business organizations (Boards of Directors for Dakota Montessori School, Northland Educators Federal Credit Union), or serve in advisory positions to governmental groups (Governor's Census Committee, Advisory Council on State Revenue Forecasting, NASS/EPA Satellite Imagery Applications Project, ESCOP/ECOP Subcommittee on Food Safety).

D. SPECIAL INITIATIVES

1. Cultural Diversity

The Department reflects and encourages diversity. Cheryl DeVuyst, one of the department's three women faculty members, is active in national professional organization subcommittees promoting the role of women in agricultural economics. William Nganje is an active participant in the NDSU TOCAR effort. Assistant research professors in the Department come from Sierra Leone, Korea, India, Honduras, and China. The new International Agribusiness M.S. program strengthens ties with France and the European Union to increase educational and research opportunities for faculty and students.

2. Affirmative Action/Equal Opportunity

The department stresses equal access to advertised positions. Selections for interviews, hiring decisions, annual evaluations, and promotion and tenure decisions are based entirely upon merit.

3. Cooperation Programming/Interdisciplinary Efforts/Interinstitutional Activities

Below is a listing of multistate research projects in which departmental faculty were involved in 2004:

Principal Investigator	Regional Committee/Title
DeVuyst, Cheryl S.	NC-221, Agricultural Finance Markets in Transition
DeVuyst, Cheryl S.	W-1177, Enhancing the Competitiveness of U.S. Meats
DeVuyst, Cheryl S.	S-222, Fruit and Vegetable Marketing Innovations and Demand Assessment
DeVuyst, Eric A.	IEG-70/SERA-IEG-31, Economics and Management of Risk in Agriculture and Natural Resources
Gustafson, Cole R.	NC-221, Agricultural Finance Markets in Transition
Hearne, Robert	W-190, Water Conservation, Competition and Quality in Western Irrigated Agriculture
Koo, Won W.	S-287, Impacts of Trade and Domestic Policies in the Competitiveness and Performance of Southern Agriculture
Koo, Won W.	WCC-101, Assessing the Chinese Market for U.S. Agricultural Products
Lambert, David K.	NC-1003, Impact Analysis and Decision Strategies for Agricultural Research
Lambert, David K.	NCA-012, Agricultural Economics
Leistritz, F. Larry	NE-162, Rural Economic Development: Alternatives in the New Competitive Environment
Leistritz, F. Larry	NC-222, Impact of Technology on Rural Consumer Access to Food and Fiber Products
Leistritz, F. Larry	NE-1011, Rural Communities, Rural Labor Markets and Public Policy
Rathge, Richard W.	NCA-013, Rural Sociology
Rathge, Richard W.	W-1001, Population Change in Rural Communities
Schultz, Steven D.	W-1133, Benefits and Costs of Natural Resources Policies Affecting Public and Private Lands
Wachenheim, Cheryl J.	WCC-072, Agribusiness Research Emphasizing Competitiveness
Wilson, William W.	NC-224, Economic Assessment of Value Added Products and Competitiveness of U.S. Grains and Oilseeds in Global Markets

4. International Activities

Faculty participated in many international activities this year. Cheryl Wachenheim continues to coordinate the university's involvement with the summer undergraduate program with the *Ecole*

Supérieure d'Agriculture in Angers, France and accompanied the students to Angers in the summer of 2004. Won Koo was invited to collaborate with faculty at two Chinese universities to establish joint teaching and research programs in agribusiness and international trade. The joint M.S. degree with *l'École Supérieure d'Agriculture* in International Agribusiness was launched in the fall of 2003 with three French students and one domestic student (who actually entered January 2004). Three new French students enrolled in the fall of 2004. Bill Wilson made presentations on wheat market differentiation and criteria for release of new wheat varieties in Argentina, grain procurement strategies in Tunisia, and discussed a variety of grain trade topics to NCI Trade Teams from Belgium, Peru, the EU, Japan, Italy, and Mexico.

5. Economic Development Efforts

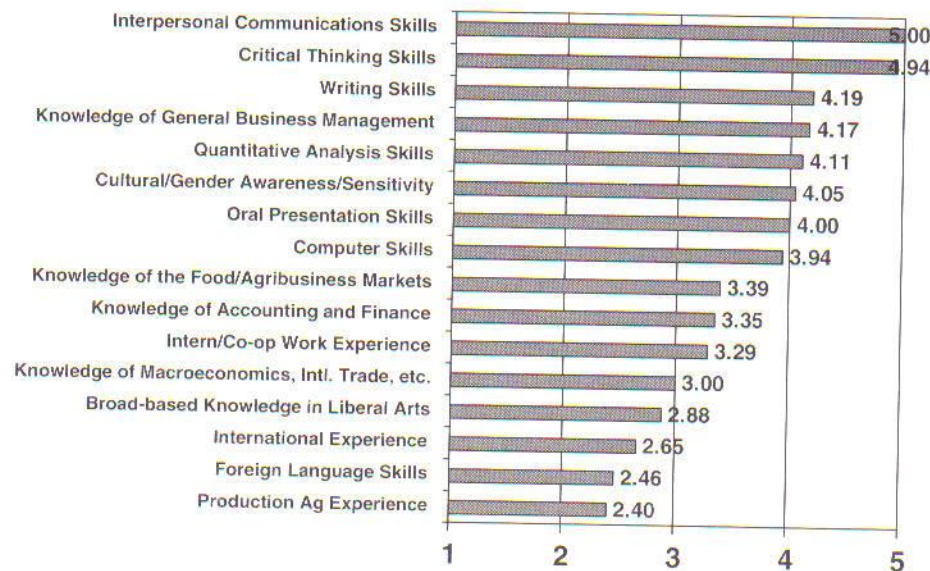
One of the primary missions of the department is to aid in economic development efforts in North Dakota. Several faculty members are directly involved in economic development as a major component of their job responsibilities. Many of the grants, publications, presentations, and workshops listed earlier in the annual report reflect these efforts. Larry Leistritz, Richard Rathge, and Kathy Tweeten have primary responsibilities in economic development. Kathy Tweeten was successful in achieving approval for the new Center for Community Vitality, an umbrella for numerous economic and business development activities in the state. She is serving as Director of the new Center.

6. Assessment

Academic year 2005 assessment activities focus on achievement of learning objectives by seniors in our Agribusiness program. Evaluation is based on recent reviews of skills, capabilities, and experiences sought by employers of agribusiness graduates and on departmental assessment areas.

Figure 1 reports results of a national survey of agribusiness executives of skills necessary for success in agribusiness careers.

Figure 1. Ratings of skills, capabilities, and experiences sought in new hires with the potential to become future company leaders*



*Rated on a scale of 1 (unimportant) to 5 (absolutely essential).
Source: Boland and Akridge (2004a)

Boland and Akridge's traits¹ might be categorized into:

- Communication
- Analytical Ability
- Subject Matter Knowledge
- "Benefits of a Liberal Education"

Traits desired by agribusiness executives are compared to assessment of student achievement by instructors of the department's agribusiness capstone course relative to adopted student learning objectives.

Results of ABAE survey (May 2005) of Agribusiness Capstone classes (AGEC 420, 444, 445, and 446):

Intended Student Outcome #1: Proficiency in written communication

<i>Indicators of proficiency</i>	<i>Mean level of proficiency Scale 1 (Poor) to 5 (Excellent)</i>
AGEC 420	
Written assignments (Out of class)	
Topical papers	2.5
Team projects	2.5
AGEC 444	
Written assignments (Out of class)	
Homework	3
Topical papers	3
Written assignments (In-class)	

¹ Boland, M.A. and J.T. Akridge. "Undergraduate Agribusiness Programs: Focus or Falter?" *Review of Agricultural Economics*. 26(Winter 2004):564-578.

Exams	3
AGEC 445	
Written assignments (Out of class)	2.5
Team projects	2.3
Written assignments (In-class)	3
AGEC 446	
Written assignments (Out of class)	
Team projects	5
Written assignments (In-class)	
Exams	5

Intended Student Outcome #2: Proficiency in oral communication –

<i>Indicators of proficiency</i>	<i>Proficiency</i>
AGEC 420	
Student presentations - team	4
AGEC 444	
<i>NOT REQUIRED/ASSESSED</i>	
AGEC 445	
In-class discussion	3.5
Student presentations - team	3.5
AGEC 446	
In-class discussion	5
Student Presentations – team	4
Presentations to Firms	3

Intended Student Outcome #3: Effective teamwork and group decision-making skills –

<i>Indicators of proficiency</i>	<i>Proficiency</i>
AGEC 420	
Quality of team reports (i.e., Output)	4
Equal contribution of all team members	2.5
AGEC 444	
<i>NOT REQUIRED/ASSESSED</i>	
AGEC 445	
Quality of team reports (i.e., Output)	4
Equal contribution of all team members	4
Group decision making effectiveness (Out of class assignments)	4
AGEC 446	
Quality of team reports (i.e., Output)	5
Equal contribution of all team members	5
Group decision making effectiveness (Out of class assignments)	5

Intended Student Outcome #4: Ability to integrate subject matter knowledge and other basic skills to solve economic and management problems

<i>Indicators of proficiency</i>	<i>Proficiency</i>
Economic concepts	
AGEC 420	
1. Partial budgeting	3
2. Enterprise budgeting	4
3. ROE, ROA, etc.	4
4. Whole farm marketing	2.5
AGEC 444	
1. Futures/Options	3
2. Logistics model	2
AGEC 445	
1. Decision	3
2. Strategy Analysis	4

AGEC 446	
1. Conduct comprehensive financial analysis	5
2. Develop investment proposal	5
3. Evaluate loan proposals	5
Economic tools	
AGEC 420	
1. FINPACK	3
2. BE Analysis	3
AGEC 444	
1. LP	3
2. Risk	2
3. Spreadsheets	2.5
4. Regression	2.5
AGEC 445	
1. LP	2
2. Risk	2
3. Game theory	4
4. Decision trees	3
AGEC 446	
1. Portfolio theory	5
2. Credit evaluation	5

Intended Student Outcome #5: Ability to use computer technology

<i>Indicators of proficiency</i>	<i>Proficiency</i>
AGEC 420	
1. FINPACK	3
2. EXCEL	4.5
3. Browser/Web searches	3
4. MS Word	4
5. PowerPoint	4
AGEC 444	
1. Spreadsheets	2.5
2. Regression	2.5
3. LP	2.5
4. Decision trees	2.5
5. @Risk	2
AGEC 445	
1. Internet	4
2. PowerPoint	3
3. LP	2.5
4. Decision trees	2.5
5. @Risk	2
AGEC 446	
1. Spreadsheets	5
2. Word processing	5

Conclusions based on observations and the capstone survey data:

Communications

Graduates appear to be good in communications, working in teams, preparing professional presentations and reports addressing a business problem or issue. The program's fifteen credit communications requirement *should* expose them to written, oral, and multi-media communication methods.

Analytical Ability

Observations -

- Some students are good
- Some students lack skills
 - Student ability, interest, and/or background
 - Poorly taught material (as instructor of 339, I'll entertain this hypothesis)
 - Use of skills sporadic rather than integrated through program
- Results of quantitative methods survey (UPC, Spring 2004) (Appendix II)
 - Spreadsheet use widespread and growing (vs. dedicated analysis software such as Storm or SAS)
 - Depending upon courses chosen, students are exposed to LP, simulation, decision analysis, financial risk managements tools, statistics and regression
 - Are we satisfied with student achievement in understanding and use of these tools?

Subject Matter Expertise

Business management skills

Review by instructors in 400 level capstone courses indicate student skills are satisfactory in these areas. They are able to develop financial plans; they can work in teams to develop whole farm plans.

There are voids in the curriculum, however. For example, the 2000 CSREES review stressed students need courses in human resources. Although the College of Business Administration offers courses in human resources, there is no consistent method to encourage students are exposed to these necessary topics.

Agricultural and food sciences

Courses are included in the Agribusiness curriculum (9 credits of S&T must/should be in CAFSNR). However, similar to the business courses, there is no consistent manner in which students are directed towards courses that might best benefit them in their careers.

Benefits of a Liberal Education

We must presume that students gain these benefits by satisfying the NDSU general education requirements. We do not measure this relative to our departmental learner objectives.

7. Addressing Institutional Purposes

Teaching – The Department has met institutional objectives in teaching by providing service courses reaching approximately 2400 students each year in ECON 105, 201, and 202.

Introductory courses in agricultural management, marketing and finance benefit approximately 280 students in AGECE 242, 244, and 246 each year. A growing Economics program now teaches a minimum set of upper division courses necessary for retaining NDSU as an Economics undergraduate degree granting institution. The Department continues to provide courses and

research advising in several multidisciplinary graduate programs, including transportation, food safety, and natural resource management.

Research – Several researchers in the Department bring prestige to the research profile of NDSU. Research important to the people of North Dakota is provided by Bill Wilson (addressing the introduction of genetically modified wheat), William Njanje (identifying costs associated with plant disease, food safety, and reducing threats from bioterrorism in America's food supply), and Larry Leistritz (determining the importance of agriculture and agribusiness to the state and identifying new uses for agricultural products).

Outreach/Extension – Extension faculty sustain their reputation in providing university-based research results to the state's farmers and farm families. Neither Larry Leistritz nor Richard Rathge receive Extension support, yet both conduct numerous applied research projects having a direct impact on local and state government decision making. Research-based outreach provided by Bill Wilson in grain markets and by Won Koo in agricultural trade and policy issues increase the profile of the department and the university in the state and among federal and state policy makers.

8. College/Unit Planning; Functions/Activities/Accomplishments

An ad hoc committee composed of chairs of the department's four standing committees (Executive Committee, Undergraduate Program Committee, Graduate Program Committee, and Outreach Program Committee), plus faculty representing specific teaching and research focus areas, met twice during the summer of 2004. Resulting from these meetings was a listing of goals and objectives in research, teaching, and outreach. Identified focus areas reflected both existing strengths, as well as areas in which strengths should be developed to increase our contributions to the Land Grant mission. The document was approved by the faculty at a Department meeting on April 19, 2005.

E. Other Goals

Goals continue to be to provide an excellent learning environment for our students, to conduct research useful to the state as well as gaining disciplinary recognition for the quality of research conducted by departmental faculty, and to provide outreach education to enable people in the state to make economically sound decisions in the private, public, and business endeavors.

II. COMMENTS

What each department's future plans are, future challenges and program strengths, as well as the overall unit.

Teaching – We will continue to provide rigorous training in economics and agribusiness. The addition of two new economics faculty in the fall of 2005 will broaden course offerings to undergraduates. It is now time to assess the different teaching areas of the department and identify necessary changes, opportunities for collaboration across campus, and necessary new resources to achieve our departmental objectives approved in April 2005. The M.S. program has been stable in terms of recruitment and funding of new students. Tightening entrance requirements two years ago improved retention and successful completion of students in the program. The new International Agribusiness M.S. program represents an important

contribution to meeting educational and research needs for the region while requiring few additional resources.

Research – Continued emphasis on publication of research results in highly regarded disciplinary journals will increase the stature of the faculty publishing in these outlets, with subsequent benefits for the department and the university. In addition, there is an increasing perception that wide dissemination of departmental research through Department Reports available electronically will increase the impact of departmental programs on improving the quality of life for all North Dakota citizens. We will continue to emphasize the importance of peer-reviewed publications in professional outlets, while also stressing the importance of disseminating these research results to business and agricultural producers, to consumers, and to other users of our research results in the state and region. Continued pursuit of extramural funds is essential to offset reductions in real terms in state support, as well as to increase resources available for faculty research and graduate programs.

Extension – Continued interaction between Extension economists and research/teaching faculty will improve the quality of the products delivered to people in the state, as well as improve the application of faculty research to real world problems.

How each department makes use of assessment data in decision making within the framework of the institution's mission and purpose.

Assessment of student math skills requires continual communication of instructors through the program of study to assure necessary skills are taught and/or reinforced in prerequisite classes. Consistency and integration of quantitative tools resulting from the Quantitative skills matrix prepared in 2004 (appendix II) has already changed course content throughout the curriculum (e.g., stressing simulation and linear programming applications in AGE 339 and using regression techniques in developing forecasting models in AGE 344).

III. APPENDIX I. AY2005 courses (incl. Summer 2004)

Instructor	Prefix	Course	Course Title	Credits	Students	FTEs
Spring 2005						
O'Relley, E	ECON	105	Quant. Econ	3	117	0.439
O'Relley, E	ECON	105	Quant. Econ	3	65	0.244
Leitch, R	ECON	201	Principles of Microeconomics	3	172	0.645
Leitch, R	ECON	201	Principles of Microeconomics	3	174	0.653
Mack, L	ECON	201	Principles of Microeconomics	3	175	0.656
Mack, L	ECON	202	Principles of Microeconomics	3	174	0.653
O'Relley, E	ECON	202	Principles of Macroeconomics	3	29	0.109
Gustafson, C	ECON	202	Principles of Macroeconomics	3	142	0.533
Wachenheim, C	AGEC	244	Agric Mktg, Livestock Emphasis	3	106	0.398
Devuyst, C	AGEC	246	Agricultural Finance I	4	38	0.190
Devuyst, C	AGEC	246	Agricultural Finance I	4	37	0.185
Herren, R	ECON	324	Money&Banking	3	48	0.265
Herren, R	ECON	324	Money&Banking	3	48	0.265
Nganje, W	ECON	341	IntermedMicro	3	50	0.276
Saxowsky, D	AGEC	342	Farm/Agbus Mgmt II	3	41	0.226
Herren, R	ECON	343	IntermedMacro	3	48	0.265
Miljkovic, D	AGEC	344	Agricultural Price Analysis	3	47	0.259
Nganje, W	AGEC	346	Agricultural Finance II	3	29	0.160
Devuyst, E	AGEC	420	Integrated Farm/Ranch Mngmt.	3	42	0.232
Gustafson, C	AGEC	446	Agribusiness Finance	3	11	0.061
Wachenheim, C	AGEC	451	NAMA	1	7	0.013
Mack, L	ECON	470	Public Finance	3	20	0.110
Herren, R	ECON	476	Monetary Theory and Policy	3	13	0.072
Wachenheim, C	ECON	484	Agriclutural Policy	3	24	0.132
Saxowsky, D	ECON	494	Water Law	2	2	0.011
DeVuyst, C	AGEC	496	Field Experience	2	1	0.004
Herren, R	AGEC	676	Monetary Theory and Policy	3	1	0.010
Koo	AGEC	711	Adv Top/Econ/Estimate/Demand Sys	1	2	0.007
Miljkovic, D	AGEC	711	Adv Top/Ec/Forecasting	1	3	0.010
Kaitibie, S	AGEC	739	Analytical Methods	3	7	0.036
Wachenheim, C	AGEC	744	Agbus I: Ag PR Mktg/Agbus Str	3	8	0.028
DeVuyst, C	AGEC	744	Agbus I: Ag PR Mktg/Agbus Str	3	8	0.028
Wilson, W	AGEC	744	Agbus I: Ag PR Mktg/Agbus Str	3	8	0.028
Wilson, W	AGEC	795	FE/Intl Agribus	3	1	0.003
DeVuyst, E	AGEC	798	Masters Thesis	3	1	0.010
Gustafson, C	AGEC	798	Masters Thesis	2	1	0.007
Hearne, R	AGEC	798	Masters Thesis	1	1	0.003
Tolliver, De	AGEC	798R	Masters Thesis	1	1	0.003
Totals						7.224

Instructor	Prefix	Course	Course Title	Credits	Students	FTEs
Fall 2004						
O'Relley,E	ECON	105	Elements of Economics	3	122	0.458
O'Relley,E	ECON	105	Elements of Economics	3	112	0.420
Leitch, B	ECON	201	Principles of Microeconomics	3	219	0.821
Leitch, B	ECON	201	Principles of Microeconomics-Econ	3	223	0.836
Mack, L	ECON	201	Principles of Microeconomics	3	74	0.278
Leitch, B	ECON	201	Principles of Microeconomics-Econ	3	29	0.109
Mack, L	ECON	202	Principles of Macroeconomics	3	167	0.626
Mack, L	ECON	202	Principles of Macroeconomics-Econ	3	162	0.608
Devuyst, E	AGEC	242	Intro/Agricultural Management	4	38	0.190
Devuyst, E	AGEC	242	Intro/Agricultural Management	4	38	0.190
Devuyst, E	AGEC	242	Intro/Agricultural Management	4	35	0.175
Herren, R	ECON	324	Money & Banking	3	52	0.287
Lambert, D	AGEC	339	Quant Methods & Decision Making	3	31	0.171
Lambert, D	AGEC	339	Quant Methods & Decision Making	3	14	0.077
O'Relley, E	ECON	341	Intermediate MicroEconomics	3	42	0.232
Shultz, S	AGEC	347	Principles of Real Estate	3	43	0.237
Shultz, S	BUSN	347	Principles of Real Estate	3	44	0.243
Saxowsky, D	AGEC	375	Applied Agricultrual Law	3	56	0.309
Wilson, W	AGEC	444	Crops Marketing	3	12	0.066
Wilson, W	AGEC	445	Agribusiness Industry Strategy	3	15	0.083
Wachenheim, C	AGEC	450	NAT Agrimarketing Assoc (NAMA) 1	1	7	0.013
Herren, R	ECON	456	History of Economic Thought	3	22	0.121
Koo, W	ECON	472	Adv International Economics	3	13	0.072
Hearne, R	ECON	481	Natural Resource Economics	3	15	0.083
Devuyst, C	AGEC	491	Sr Agribusiness Seminar	1	13	0.024
Devuyst, E	AGEC	494	Analysis Farm Expansion	1	1	0.002
Devuyst, C	AGEC	494	Ag Statistical Project	3	1	0.006
Nganje, W	AGEC	494	Food Safety	3	1	0.006
Devuyst, C	AGEC	496	FE/AgBus Students	2	2	0.007
Koo, W	ECON	672	Adv International Economics	3	1	0.010
Hearne, R	ECON	681	Natural Resource Economics	3	4	0.042
Miljkovic, D	AGEC	710	Econometrics	3	12	0.125
Hearne, R	AGEC	741	Advanced Microeconomics	3	13	0.135
Wilson, W	AGEC	746	Agbus 11/AgFin/Comm Tra	3	7	0.073
Devuyst, C	AGEC	746	Agbus 11/AgFin/Comm Tra	3	7	0.073
Nganje, W	AGEC	746	Agbus 11/AgFin/Comm Tra	3	7	0.073
Wilson, W	AGEC	791	TTT/Spreadsht Dec Models	1	7	0.024
Koo, W	AGEC	791	IS/International Economoics	3	1	0.010
Nganje,W	AGEC	797	Masters Paper	1	1	0.003
Nganje. W	AGEC	798	Masters Thesis	5	1	0.017

Instructor	Prefix	Course	Course Title	Credits	Students	FTEs
Fall 2004 (continued)						
Devuyst, C	AGEC	798	Masters Thesis	5	1	0.017
Wachenheim, C	AGEC	798	Masters Thesis	4	1	0.014
Nganje, W	AGEC	798	Masters Thesis	1	1	0.003
Gustafson, C	AGEC	798	Masters Thesis	3	1	0.010
Totals						7.379

Instructor	Prefix	Course	Course Title	Credits	Students	FTEs
Summer 2004						
O'Relley	AGEC	201	Principles of Microeconomics	3	25	0.094
O'Relley	AGEC	202	Principles of Microeconomics	3	21	0.079
Herren, R	AGEC	324	Money and Banking	3	39	0.215
Wachenheim, C	AGEC	379	Study Tour Abroad	3	13	0.072
Herren, R	AGEC	494	IS/Issues/Labor Markets	3	1	0.006
Gustafson, C	AGEC	494	IS/Macroeconomics	3	1	0.006
DeVuyst, C.	AGEC	496	FE/Agribus Major Internship	2	7	0.026
Leitch, R	AGEC	496	FE/Crops Scouting	3	1	0.006
DeVuyst, C	AGEC	496	FE/Farm Credit Experience	3	1	0.006
Leitch, R	AGEC	496	FE/Ag Insurance	3	1	0.006
Leitch, R	AGEC	496	FE/US Forest Service	3	1	0.006
Gustafson, C	AGEC	496	FE/Internship	3	1	0.006
Leitch, R	AGEC	496	FE/Agric Marketing/Sales	3	1	0.006
Wachenheim, C	AGEC	499	ST/Issues/Internal.Intergr.Trade	3	13	0.072
Wilson, W	AGEC	797	Masters Paper	3	1	0.010
Wilson, W	AGEC	797	Masters Paper	1	1	0.003
DeVuyst, C.	AGEC	798	Masters Thesis	4	1	0.014
DeVuyst, E	AGEC	798	Masters Thesis	6	1	0.021
DeVuyst, E	AGEC	798	Masters Thesis	4	1	0.014
Wilson, W	AGEC	798	Masters Thesis	4	1	0.014
Wilson, W	AGEC	798	Masters Thesis	4	1	0.014
Wilson, W	AGEC	798	Masters Thesis	1	1	0.003
Koo, W	AGEC	798	Masters Thesis	6	1	0.021
Hearne, R	AGEC	798	Masters Thesis	6	1	0.021
Nganje, W	AGEC	798	Masters Thesis	4	1	0.014
Nganje, W	AGEC	798	Masters Thesis	4	1	0.014
Nganje, W	AGEC	798	Masters Thesis	4	1	0.014
Totals						0.778

APPENDIX II. Quantitative Skills Matrix

UNDERGRADUATE PROGRAM COMMITTEE
JUNE 2004

CLASS	PREREQUISITES, ASSUMES	TEACHES	SUBJECTS, TECHNIQUES, PROGRAMS USED
AGEC 105	Algebra		Algebra
ECON 150	MATH 103; Algebra	Calculus	Derivatives, partial derivatives, optimization
ECON / AGEC 201 (Leitch)	Algebra, Graphic analysis	marginal analysis; graphical analysis	Elasticities
ECON / AGEC 201 (Mack)	Algebra		
ECON / AGEC 202 (Gustafson)	Algebra; Graphical analysis	marginal analysis; graphical analysis	
ECON / AGEC 202 (Mack)	Algebra		
AGEC 220	ECON 201; Algebra		Elasticity, Lorenz curves, Gini coefficients, present value
AGEC 242	Algebra	spreadsheets (in some years also teach statistics, decision analysis, decision trees)	
AGEC 244	Algebra, Graphical analysis	futures, options	Seasonal price indices, correction for secular and cyclical trends, marketing game wherein students trade futures, options and incorporate effect of commissions and basis on net price, two in-class auction trading games.
AGEC 246	Algebra, basic spreadsheets		
ECON 324	ECON 201, 202; Algebra		
AGEC 339	ECON 201; AGEC 150 or MATH 146		Applications include differentiation, spreadsheets (regression, add-ins such as solver, decision tree, @Risk), linear regression, decisions under risk and uncertainty, use of Baye's theory to update probability estimates, linear and integer programming using Excel – RHS and cost ranging, sensitivity analysis. Two weeks spent on simulation.
ECON 341 (Nganje)	ECON 201, 202, MATH 146	matrix algebra, use of regression results to derive elasticities, introduction to non-cooperative game theory	matrix algebra, use of regression results to derive elasticities, introduction to non-cooperative game theory
ECON 341 (O'Relley)	ECON 201, 202, MATH 146	calculus	
AGEC 342 (Mack)	AGEC 242; Algebra, calculus, spreadsheets, STAT 331 (not prerequisite), decision trees, linear programming with sensitivity analysis		Storm
ECON 343	ECON 201, 202; Algebra		

CLASS	PREREQUISITES, ASSUMES	TEACHES	SUBJECTS, TECHNIQUES, PROGRAMS USED
AGEC 344	AGEC 244		
AGEC 346	Calculus, spreadsheets, statistics, risk analysis, stochastic simulation	statistics, risk analysis	Correlations, mean, std. dev., portfolio, risk analysis including value at risk and sensitivity analysis
AGEC 347	ECON 201	financial calculations	
AGEC 374	spreadsheets		Financial statements
AGEC 378	ECON 201	Unknown	
AGEC 420	AGEC 242, 244, or 246; Calculus, spreadsheets		
AGEC 444	AGEC 344, PRE/CO-REQ AGE 399; Matrix algebra, spreadsheets, statistics, linear programming	risk analysis	Portfolio models, graphs, statistics, regression analysis, risk. Would use decision analysis / trees, lp, and stochastic simulation if introduced prior
AGEC 445	AGEC 344, PRE/CO-REQ AGE 399; Spreadsheets, decision analysis / trees	game theory	Applications of decision analysis / trees. Could add applications in linear programming, stochastic simulation.
AGEC 446	AGEC 339, 346; Calculus, spreadsheets, statistics / probabilities, risk analysis	present and use spreadsheets, statistics / probabilities, and risk analysis	Student understanding of variance and correlation is weak.
ECON 456/656	ECON 341 or BUSN 451; Calculus		
ECON 461/661	ECON 341 or BUSN 451; Calculus		
ECON 465/665	ECON 341 or BUSN 451; Calculus		
ECON 470	ECON 341 or BUSN 451; Calculus, basic knowledge of statistics (such as STAT 331)		
SAFE 470/670	spreadsheets, decision trees	statistics, decision trees / analysis	Precision Tree software to do risk assessment / even trees Correlation, CV, std. dev., others
ECON 472/672	ECON 341 or BUSN 451; Calculus		
AGEC 472	AGEC 378, AGE 339 or BUSN 352	unknown	
ECON 476/676	ECON 341 or BUSN 451; Calculus		
ECON 480	ECON 341 or BUSN 451; Calculus		Calculus
ECON 481	ECON 341 or BUSN 451; Algebra, discounting, basic optimization		Some models with math notation Prisoners dilemma; resource use models; valuation, cost-benefit
ECON 482	ECON 341 or BUSN 451; Algebra, discounting, basic optimization		Some models with math notation Prisoners dilemma; resource use models; valuation, cost-benefit
AGEC 484	Algebra, Graphical analysis	Elasticities	Elasticities, graphical representation of effect of policies.

* AGE 350, AGE 360, AGE 375, AGE 450, AGE 451, and AGE 491 do not emphasize or use quantitative techniques.

APPENDIX III. Department Mission and Goals. Adopted April 19, 2005

NDSU

NORTH DAKOTA STATE UNIVERSITY

Department of Agribusiness and Applied Economics

Mission

The mission of this Department is to provide objective economic analysis to support informed decision making in areas of resource allocation, business management, and public policy for the people of North Dakota and beyond. Faculty and staff shall provide high-quality education programs for undergraduate and graduate students and for audiences across the state reached through University outreach efforts.

Research, Teaching and Outreach Objectives

Objectives meeting the tripartite mission of the Department envision using current faculty and staff expertise, reallocating faculty and staff assignments, and adding new resources to meet emerging needs within North Dakota, the nation, and the world.

Research

Objective

Maintain and grow vibrant economic research programs in:

- Science and emerging technologies;
- Agribusiness marketing, management, and finance;
- Production economics;
- Public policy analyses, including rural development, public finance, transportation, health and social welfare, and demographic changes;
- Natural resource and environmental economics;
- New products and uses for North Dakota's agricultural, natural and human resources to further economic development; and
- International trade,

in order to enhance the quality of life for all citizens.

Action Plans

Attract and retain highly qualified faculty including new faculty to address science and technology innovation, development, and adoption and to address emerging public policy issues.

Procure private and public funding necessary to support faculty and staff research programs in order to provide timely and scientifically sound analyses of issues.

Teaching

Objective

Be a recognized center of excellence in student achievement in:

- Agricultural economics;
- Agribusiness marketing, management, and finance;
- International Agribusiness;
- Natural Resource Management; and
- Economics,

by offering undergraduate and graduate academic programs and courses promoting the economic way of thinking.

Action Plans

Recruit excellent economists to achieve excellence in economic education, to provide disciplinary foundations to agricultural economics, agribusiness, and business programs, and to support development of a Ph.D. degree in Applied Economics.

Attract and retain applied economics faculty and necessary funding to achieve excellence in current and future collaborations with international universities in support of undergraduate and graduate programs in international agribusiness and applied economics.

Faculty shall enhance agribusiness and economic education in both rural and urban areas of the Northern Plains by working collaboratively with the NDSU Research and Extension Centers, the Extension Service, the office of the Vice-President for Academic Affairs, and other educational institutions throughout the region.

Assess current and future demands for online and distance education and identify and procure resources necessary to build a sustainable portfolio of traditional and nontraditional delivery mechanisms for the Department's educational programs.

Outreach

Objectives

Maintain and grow vibrant research-based outreach programs in:

- Science and emerging technologies;
- Commodity and livestock marketing;
- Food and other bio-based product marketing;
- Farm economics;
- Regional community and economic development and public finance;
- Natural resource and environmental management;
- Health and social welfare;
- Business analysis for rural and urban firms; and
- International marketing,

in order to enhance the quality of life for all citizens.

Action Plans

Maintain and enhance the coordination of Extension Economics with the teaching and research programs of the Department and by encouraging all faculty to conduct research and disseminate findings to our local stakeholders.

Improve dissemination outlets and encourage wider distribution of faculty research accessible by our North Dakota audience.

Procure and provide resources necessary for engagement of faculty with rural and urban businesses to improve the performance of the region's economy.